Vidya Pratishthan's
Dr. Cyrus Poonawalla School (CBSE)

Sub - Mathematics **Annual Planning 2024-25** **Std - VII**

Sr. No.	Month/Working days	Topic/Chapter	Sub-Topic/concept	Learning Objectives	Learning Outcome	21st century skills/Competencies/Values	Activity
1.	**April** **Working Days-22**	Bridge Course(09period)	1. Fractions 2. Decimals 3. Algebra 4.Basic Geometric Ideas 5.Understanding elementary shapes 6.Integers	Understanding different properties of whole numbers. Applications of basic mathematical operations in daily life situations involving Integers and whole numbers. Multiples and factors Testing divisibility, Common Factors and Common Multiples, Prime Factorization, HCF and LCM, operations on integers (addition, subtraction) Plane figures and Solid shapes. Faces, Edges and Vertices.	1. Able to understand, identify the Integers. 2. Use of Estimation in day to day Problems. 3. Involves use of variable with different operations. Use Unitary method. 4. Write the multiples of two or more numbers, find their common multiples and to find the least common multiple. 5 Understanding the prime factorization of a number. .	1. Understanding Basic Concepts. 2. Application 3. Properties of Numbers 4. Logical thinking and reasoning. 5.operations on integers (addition, subtraction) 6.Critical thinking and Problem solving	Worksheet 1,2,3

					6. List and execute steps and construction to the given angles.		
	April	Integers (14period) Properties of Addition and subtraction of integers Multiplication of Integers Properties of multiplication of integers	Closure under Addition Closure under Subtraction Commutative Property Associative Property Additive Identity Multiplication of a Positive and Negative Integer Multiplication of two Negative Integers Closure under Multiplication Commutativity of Multiplication	Represent integers on a number line in order to perform operations and verify properties of integers Apply properties of addition and subtraction of integers in order to simplify arithmetic expressions. Apply rules of multiplication of integers in order to solve various arithmetic expressions and contextual	Applies rules for		To multiply and divide integers using unit squares of different colors.

			Multiplication by Zero Multiplicative Identity Associativity for Multiplication Distributive Property	problems Apply properties of multiplication of integers in order to simplify arithmetic expressions	multiplication and division in order to solve problems involving two integers with same or different signs		
		Division of integers Properties of division of Integers		Apply properties of addition, subtraction and multiplication of integers in order to devise methods for easier calculation and solve problems based on real life related to integers			

				Infer division of integers as inverse operation of multiplication in order to write multiplication statement into corresponding division statement Apply properties of division of integers in order to simplify arithmetic expressions			
2.	**June** **Working Days-16** **No. of period-19**					1.	
		Fractions and Decimals (12period) Multiplication of Fractions		Define proper, improper and mixed fractions in order to distinguish between them Multiply (or divide) numerator and denominator with the same number in order to write equivalent	Applies repeated addition and subtraction in order to interpret the division and multiplication of fractions. For example, interprets 2/3 x 4/5 as 2^ /3 of 4/5. Also 1/4 ÷1/2 is interpreted as how many 1/4 make 1/2? Expresses a	2. Share and care. (moral education) 2.Time management : 3.Aesthetic sense - To make beautiful drawing to show fraction number 4. Critical thinking and problem solving.	To multiply fractions using a sheet of paper. To divide fractions using a number line. To multiply two decimals up to one place using a square grid.

				fractions	fraction as percentages and decimals in order to solve daily life problems. For example, calculates 15% of Rs 100 to say that 100 x 0.15 = Rs 15		
		Multiplication of a Fraction by Whole Number		Convert unlike fractions into like fractions in order to compare them.			
		Multiplication of a Fraction by Fraction		Extend concept of multiplication as repetitive addition for fraction in order to multiply a fraction and a whole number.			
		Division of fractions		Multiply fractions in order to solve for the operator 'of'	Applies algorithms for multiplication and division in order to multiply and divide fractions/decimals. Applies appropriate mathematical operations on rational numbers in order to solve problems related to daily life situations		
		Division of Whole Number by a Fraction		Multiply fractions in order to calculate the total number of parts			
		Division of a Fraction by a Whole Number		Multiply fractions in order to compare the value of the product with the original fractions			
		Division of a Fraction by Another Fraction					
		Decimal Numbers					

		Multiplication of Decimal numbers Multiplication of Decimal Numbers by 10, 100 and 1000 Division of decimal Numbers Division by 10, 100 and 1000 Division of a Decimal Number by a Whole Number Division of a Decimal Number by another Decimal Number		Invert a given fraction in order to find its reciprocal Divide two fractions in order to find the smaller parts of the fraction recall and apply concept of decimal representation and expansion in order to perform mathematical operations on decimal Multiply decimal numbers by 10, 100 and 1000 in order to infer right shift in decimal point			

				Divide decimal numbers by 10, 100 and 1000 in order to infer left shift in decimal point Divide decimal number by a whole number in order to solve questions related to decimals Convert decimals into fractions in order to divide decimal number by another decimal number	Calculates the simple form of a fraction in order to distinguish quantities that are in proportion. For example, tells that 15, 45, 40, 120 are in proportion as 15/45 is the same as 40/120		
3.	**June-July** **No. of working days-26** **Period -23**						
		Data Handling (12period) Representative Values Arithmetic Mean	12	Calculate average in order to represent the central tendency of the data Calculate arithmetic mean in order to find its position in the data Calculate range of the data in order to know		Calculation, drawing , observation Collaboration Communication Flexibility and adoptability	Drawing and Reading double bar graph.

		Mode Median Use of bar graphs with a different purpose		the spread of the data Calculate mode of the data in order to find the observation that occurs most often in the data set Calculate median of the data in order to find the observation that lies in the middle of the data set to represent given information in form of a bar graph Represent data using double bar graph in order to compare and discuss two collection of data at a glance	Represents data pictorially in order to interpret data using bar graph such as consumption of electricity is more in winters than summer, runs scored by a team in first 10 overs etc. Calculates mean, median and mode in order to find various representative values for simple data from her/his daily life		
4.	**July** **(Periodic Test)**						

		Simple equations (10period) Setting up of an Equation Review of what we Know What is an equation? More equations Applications of simple equations to practical solutions		Use number and variable with different operations in order to express a real life situation in the form of a simple linear equation. Convert the given equation in words in order to express it in statement form Use trial and error method in order to determine the solution of a simple equation. Create a strategy in order to solve the given simple equation Use the given solution in order to construct equations from it. Construct simple equations in order to solve them for the given contextual Problems/puzzles.	Translates a real-life situation in the form of a simple algebraic equation in order to arrive at a generalized problem and solution for the situation	1) Decision making 2) Logical thinking 3) Handling practical problems	-

5.	**August** **Working Days-25** **Period-28**	Lines and Angles (10period) Introduction Related Angles Pairs of Lines	Complementary Angles Supplementary Angles Intersecting Lines Angles made by a Transversal Transversal of	Recall the concept of line, line segment and angles in order to identify them in the given figure(s). Examine different angles in order to identify complementary angles. Examine different angles in order to identify supplementary angles. Examine different angles in order to determine the measure of their complement and supplement Identify different types of angles in order to determine the measure of unknown angles in the given figure. Compare the given lines in order to distinguish between intersecting and parallel lines Discuss the different	Classifies pairs of angles based on their properties in order describe linear, supplementary, complementary, adjacent and vertically opposite angles Applies the properties of linear, supplementary, complementary etc. Angle in order to find the value of one angle when the other one is given.	Drawing and keen observation, Complementing each other Collaboration	To verify that vertically opposite angles are equal. To verify experimentally that when two parallel lines are cut- i) Each pair of corresponding angles is equal ii) Each pair of alternate interior angles is equal iii) Each pair of interior angles on same side of transversal is supplementary. iv) Each pair of exterior angles on same side of transversal are supplementary.

			Parallel Lines Checking for Parallel lines	angles made by transversal and intersecting lines in order to identify them in the given figure. Use the properties of angles made by a transversal of parallel lines in order to determine the measure of unknown angles. Create a strategy in order to determine whether the given lines are parallel or not.	Verifies the properties of various pairs of angles formed when a transversal cuts two lines in order demonstrate the properties of angles when two lines are parallel		
6.	**September Working Days-25 (Periods14)**						

		The triangle and its properties(15period) Introduction Medians of a triangle Altitude of a triangle Exterior angle of a triangle and its property Angle sum property of a triangle Sum of lengths of 2 sides of a triangle		Compare different triangles in order to classify them on the basis of their sides and angles Recall the parts of a triangle in order to describe it for the given triangle.and its properties Describe median of a triangle in order to identify it for the given triangle Describe altitude of a triangle in order to identify it for the given triangle Apply the exterior angle property of a triangle in order to find the measure of the unknown angle in the given triangle Apply the angle sum property of a triangle in order to find the measure of unknown angle. Use appropriate property in order to determine the measure of the unknown angle(s)	Applies angle sum property of a triangle to calculate unknown angles of a triangle when its two angles are known	1. To know properties of triangle and its implementation. 2. Analyzing the things 3. Experiential learning 4. Collaboration	i) Medians and Altitudes of a triangle by paper folding. ii) To verify Pythagoras theorem. iii) To verify triangle inequality property iv) Angle sum property of a triangle. v) Exterior angle property of a triangle. vi) To verify that in an isosceles triangle angles opposite to the equal sides are equal.

		Right angles triangle and Pythagoras property		in the given figure Apply the property of lengths of sides of a triangle in order to determine whether a triangle is possible for the given side lengths or not. Apply the Pythagoras property in order to verify whether the triangle for the given side lengths will be right angled triangle or not. Apply the Pythagoras property in order to find the length of the unknown side in a right-angled triangle. Use appropriate properties in order to determine whether the given triangle is possible or not.			
7.	**September**	**First Terminal Examination**					
8.	**October** **Working Days-24** **Period-26**						
		Comparing Quantities (16period)	Meaning of Percentage	Convert denominators of fractions into 100 in order to represent them in	Applies algorithm to calculate percentages in order to calculate	1. Comparison of two quantities 2. Social and moral values.	-

				percentages	profits, loss and rate of interest in simple interest calculation	3. Business attitude 4. Honesty and truthfulness	
			Converting Fractional Numbers to Percentage	Convert fractional numbers to percentage in order to make comparing of quantities easier			
		Comparing Quantities using percentage	Converting Decimals to Percentage	Convert decimal numbers to percentage in order to make comparing of quantities easier			
			Converting Percentages to Fractions or Decimals	Convert percentages to fractions or decimals in order to solve real life problems			
			Fun with Estimation	Represent shaded part in the form of percentage in order to estimate the part of an area			
			Interpreting Percentages	Interpret percentage given in a statement in order to infer meaning of the statement			
		Use of Percentages	Converting Percentages to “How Many”	Convert percentage into			
			Ratios to Per cent				

			Increase or Decrease as Per cent	number in order to know how many of a given situation Convert ratios to percentages in order to solve problems based on real life Calculate increase or decrease in quantity as percentage in order to examine change in quantity based on real life problems			
9.	**November Working days-14 Period-12**						
		Rational Numbers 10	What are rational numbers	Define rational numbers in order to classify a number as a rational number Applies appropriate mathematical operations on rational numbers in order to solve problems related to daily life situations Represent integers in the form of	Explore various properties of rational numbers	Critical thinking and Problem solving	

			Positive and negative rational numbers Rational numbers on a number line Rational numbers in standard form Comparison of rational numbers Rational number between two rational numbers	numerator/denominator where denominator is non-zero in order to define rational numbers Multiply numerator and denominator by same non-zero integer in order to find equivalent rational numbers. Define positive and negative rational numbers in order to classify a number as either of them Construct a number line in order to represent rational numbers on it Simplify rational number such that there is no common factor between numerator and denominator in order to represent the number in standard form Determine the distance of a rational number from 0 in order to compare them Calculate and find rational numbers between any 2 rational	Applies appropriate mathematical operations on rational numbers in order to solve problems related to daily life situations		

			Operations on rational numbers: Addition, subtraction, multiplication, division	numbers in order to infer that there are infinite rational numbers between any 2 given rational numbers Apply the rules of rational numbers operations in order to simplify arithmetic operations			
10.	**December Working Days-21 Period-14**						
		Perimeter and Area 15	Area of a Parallelogram Area of triangle Circles: Circumference of a Circle	Use unit square grid sheets in order to find the perimeter and estimate the area of parallelogram. Develop and apply a formula in order to determine the area of a parallelogram. Compare the area of a triangle and its corresponding parallelogram in order to discuss their relation. Use direct or indirect measurements in order to describe the relationships among	Uses unit square grid/graph sheet in order to approximate the area of a closed shape Applies properties of simple shape in order to calculate the areas	Critical Thinking and Problem solving Creativity and Innovation	To verify that congruent triangles have equal area but two triangles with equal in area may not be congruent. To derive formula for the area of a parallelogram. To find the circumference of a circle and hence to find the value of π, experimentaly

			Area of Circle	radius, diameter, and circumference of circles Investigate different circumference of circles and compare them with their respective diameter in order to relate circumference to Pi. Use direct or indirect methods to find the circumference of circle, semicircle. Develop and apply the formula in order to find the area of a circle and semicircle. Convert units in order to measure area or perimeter in other units. Examine area and perimeter of different figures in order to find solution for real life problems.	of the regions enclosed in a rectangle and a square		
11.	**January Working Days-23 Period-18**						
		Algebraic Expressions 10	Introduction	Describe algebraic expressions in order to	Translates a real-life situation in the		

				distinguish them from arithmetic expressions.	form of a simple algebraic equation in order to arrive at a generalized problem and solution for the situation		
			Formation of expressions	Combine variables and constants in order to form an algebraic expression for the given statement.			
			Terms of an Expression	Examine the given Algebraic expression in order to determine its terms and their factors.			
				Examine the given algebraic expressions in order to distinguish between the terms which are constants and those which are not.			
			Like and unlike terms	Examine the given algebraic expression in order to determine the numerical coefficient of the given variable.			
			Monomials, binomials, trinomials and polynomials	Examine the algebraic factors of the given terms in order to distinguish between like and unlike terms.	Applies algebraic properties in order to add/subtract two algebraic expressions		

			Finding value of an Expression	Examine the given algebraic expressions in order to classify them as monomial, binomial, trinomial, polynomial. Combine like terms in order to simplify the given algebraic expression. Use the given value of variable(s) in order to evaluate the algebraic expression.			
12.	**January (Second Periodic Test)**						
		Exponents and powers(10 periods)	Exponents	Describe exponential form of numbers in order to express numbers in exponential notation. Applies properties of exponential numbers in order to simplify problems involving multiplication and division of large numbers Examine the exponential form of the given number in order to identify its base and exponent.	Students would be able to Compare very small and very large numbers	Flexibility and Adoptability	

			Laws of Exponents Multiplying Powers with the Same Base Dividing Powers with the Same Base Taking Power of a Power Multiplying Powers with the Same Exponents Dividing Powers with the Same Exponents Miscellaneous examples of laws of Exponents Decimal Number system	Examine the numbers given in exponential form in order to compare and represent them in an order. Find prime factors of numbers in order to express them as the product of powers of prime factors. Apply laws of exponents in order to simplify a given expression Write numbers using powers of 10 in order to express them in standard form Expand the given number using powers of 10 in order to express it	Applies properties of exponential numbers in order to simplify problems involving multiplication and division of large numbers		

			Expressing large numbers in standard form	in the exponent form Represent large numbers in exponential form in order to read, understand and compare them easily.			
13.	**February** **Working Days -20**						
		Symmetry 10	Introduction Lines of symmetry for regular polygons Rotational symmetry	Give examples and non-examples in order to describe symmetrical figures. Determine lines of symmetry for the given figures in order to classify them on the basis of no. of lines of symmetry. Examine regular polygons in order to determine their lines of symmetry. Complete the mirror reflection of the given figure(s) along the mirror line (i.e., the line of symmetry) in order to identify the figure	The students will be able to define symmetry and identify and list examples of symmetrical objects, both manmade and in nature	Collaboration Communication Information Literacy Technology Literacy	To determine if a figure shows rotational symmetry with respect to a rotation of 90° and 180°

			Line symmetry and rotational symmetry	Give example(s) for rotational symmetry in order to describe their centre of rotation and the direction of rotation. Examine the given figure in order to determine its angle of rotation. Examine the given figure in order to determine its order of Rotation Examine the given figures in order to identify figures which have both line symmetry as well as rotational symmetry			
14.	**February Working Days -20**						
		Visualizing Solid Shapes(10 Periods)	Introduction: Plane figures and solid shapes Faces, edges and Vertices	Discuss and give examples in order to differentiate between plane figures and solid shapes Examine different solid shapes in order to identify and count their number of faces, edges and vertices		Flexibility and Adoptability Critical Thinking. Creativity and Innovation	To draw oblique and isometric sketches of cube and cuboid.

			Nets for building 3D Shapes	Build nets of 3D shapes in order to understand their properties			
			Drawing solids on a flat Surface Oblique Sketches Isometric Sketches Visualising Solid Objects	Examine oblique sketches in order to visualise all the faces of a solid shape Use isometric dot sheet in order to draw isometric sketches of a 3D shape Draw 3D objects in 2D in order to visualize solid objects from different perspectives			
			Viewing different sections of a solid Cutting or Slicing Shadow Play Looking at it from Certain Angles to Get Different Views	Examine cross sections of different solid shapes in order to interpret and visualise different Planes Examine the different figures formed by changing the angle of shadows formed in order to visualise solid figures			

				Examine solid figures from different angles in order to view different sections of solids.			